

Notice of Allowability

Application No.

10/804,530

Examiner

Mark Connolly

Applicant(s)

SOHN ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the application being filed 3/19/04.
2. ☒ The allowed claim(s) is/are 1-14.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

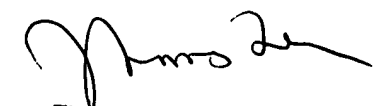
* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☒ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date 20060720.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


THOMAS LEE
SUPERVISORY PATENT EXAMINER
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DETAILED ACTION

Drawings

1. Figures 1-7 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

REASONS FOR ALLOWANCE

2. The following is an examiner's statement of reasons for allowance:
- a. Kim et al., U.S. Pat. 7076377 teaches a system which adjusts a data sampling clocks by phase comparing data and edge information and adjusting the sampling clocks accordingly [col. 2 lines 52-54, col. 5 lines 16-19, col. 6 lines 14-25]. Kim alternatively teaches offsetting an incoming data stream rather than adjusting the above clocks [col. 2 lines 52-54]. Because the data clocks (i.e. sampling clocks) are "held fixed" in the alternative embodiment, it is interpreted that the phase difference detected by the phase detector would not be responsible for generating the sampling clock signals but rather used to offset the incoming data signal.
 - b. Minzoni et al., U.S. Pat. 7046060 teaches reducing skew between a clock and data signal by determining a count value representing a skew between a clock and data and

delays an incoming clock by an amount of time indicative of the count value [fig. 1, abstract, col. 1 lines 15-17, 25-29 and 55-62].

c. Warwar et al., U.S. Pat. 6738922 teaches reducing skew between two clocks by phase comparing the clocks with a phase comparator and outputting up and down signals to a counter which then outputs a value used for clock adjustment [figs. 2-3, abstract and col. 5 lines 5-11].

d. Kurd et al., U.S. Pat. 6622255 teaches a skew measuring circuit which uses a phase comparator to generate up and down count signals used to determine a count value [fig. 1, abstract and col. 2 lines 42-65].

e. Terada et al., U.S. Pat. No. 6121815 teaches reducing skew between a clock and a data signal by phase comparing the clock and data signal and outputting up and down signals to a counter which then outputs a value used to delay the clock [fig. 8, col. 12 lines 16-24 and col. 12 line 53- col. 13 line 8].

f. Nishimura U.S. Pat. No. 5935257 teaches reducing skew between a clock and a data signal by phase comparing the clock and data signal and delaying the data signal in response to the detected skew [fig. 1 and col. 3 lines 32-44].

g. The applicants admitted prior art [AAPA] teaches reducing skew by delaying a data signal or both a data and clock signal [figs. 1 and 3]. Additionally, AAPA teaches driving a data signal with a first clock generated by a DLL circuit, which also generates a second clock signal wherein the second signal compensates for buffer delays [fig. 6 and page 4]. Finally, the AAPA also teaches reducing skew by phase comparing two clock

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signals with a phase comparator, having an adder output a signal based on an offset code and output from a final state machine and generating a first and second clock.

The prior art of record does not teach or suggest individually or in combination phase detecting a difference between a data signal and external clock signal wherein the data signal is driven by an output driver generated in response to a first clock generated by a DLL which also outputs a second clock signal in response to a calibration signal.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Connolly whose telephone number is (571) 272-3666. The examiner can normally be reached on M-F 8AM-5PM (except every first Friday).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas C. Lee can be reached on (571) 272-3667. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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mc
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